

CLAIMS

We claim:

1. An apparatus, comprising:

a router for one or more packets that comprise an Internet Protocol ("IP") packet;

5 wherein the router comprises one or more packet replication components that employ the IP packet to propagate a plurality of copies of the IP packet.

2. The apparatus of claim 1, wherein the router receives the IP packet, wherein the one or more packet replication components comprises a packet replication component that employs the IP packet to generate the plurality of copies of the IP packet.

10 3. The apparatus of claim 2, wherein the plurality of copies of the IP packet comprise a first copy and a second copy of the IP packet;

wherein the IP packet comprises an IP header, wherein each of the first copy and the second copy of the IP packet comprise a copy of the IP header.

4. The apparatus of claim 3, wherein both the first copy and the second copy of
15 the IP packet are associated with a single IP address.

5. The apparatus of claim 2, wherein the plurality of copies of the IP packet comprise a first copy and a second copy of the IP packet;

wherein the router comprises a first switch fabric and a second switch fabric;

wherein the packet replication component sends the first copy to the first switch
5 fabric, wherein the packet replication component sends the second copy to the second switch fabric;

wherein the first switch fabric routes the first copy through a first path to an intended destination of the IP packet, wherein the second switch fabric routes the second copy through a second path to the intended destination of the IP packet.

10 6. The apparatus of claim 5, wherein upon a transmission failure in one of the first path or the second path, the router continues propagation of one of the first copy or the second copy to the intended destination on an available one of the first path or the second path.

7. The apparatus of claim 2, wherein the IP packet comprises a first IP packet,
15 wherein the router comprises a first line interface and a second line interface;

wherein the router receives the first IP packet on the first line interface, wherein the router receives a second IP packet on the second line interface contemporaneously with the first IP packet, wherein the first IP packet and the second IP packet are substantially identical;

wherein the packet replication component comprises a first packet replication
20 component, wherein the first line interface passes the first IP packet to the first packet replication component;

wherein the second line interface passes the second IP packet to a second packet replication component.

8. The apparatus of claim 7, wherein the first packet replication component employs the first IP packet to propagate the plurality of copies of the first IP packet, wherein the second packet replication component employs the second IP packet to propagate a plurality of copies of the second IP packet;

5 wherein the plurality of copies of the first IP packet comprise a first copy and a second copy of the first IP packet, wherein the plurality of copies of the second IP packet comprise a first copy and a second copy of the second IP packet;

wherein the router comprises a first packet selection component and a second packet selection component;

10 wherein the first packet replication component sends the first copy of the first IP packet to the first packet selection component, wherein the second packet replication component sends the first copy of the second IP packet to the first packet selection component;

wherein the first packet replication component sends the second copy of the first IP
15 packet to the second packet selection component, wherein the second packet replication component sends the second copy of the second IP packet to the second packet selection component.

9. The apparatus of claim 8, wherein the router comprises a first IP switch fabric and a second IP switch fabric;

20 wherein the first packet selection component sends one of the first copy of the first IP packet and the first copy of the second IP packet to the first IP switch fabric, wherein the second packet selection component sends one of the second copy of the first IP packet and the second copy of the second IP packet to the second IP switch fabric.

10. The apparatus of claim 9, wherein the first IP packet and the second IP packet comprise an indication of a destination;

wherein the first IP switch fabric routes the one of the first copy of the first IP packet and the first copy of the second IP packet through a first path to the destination, wherein the
5 second IP switch fabric routes the one of the second copy of the first IP packet and the second copy of the second IP packet through a second path to the destination.

11. The apparatus of claim 1, wherein the IP packet is associated with a real-time application, wherein the router contemporaneously propagates the plurality of copies of the IP packet to promote an increase in likelihood that at least one copy of the plurality of copies
10 of the IP packet arrives at the real-time application.

12. The apparatus of claim 1, wherein the router comprises a packet selection component that receives two IP packets and chooses one of the two IP packets for propagation.

13. The apparatus of claim 1, wherein the router contemporaneously receives a
15 plurality of identical IP packets that comprise the IP packet, wherein the router generates a plurality of copies of the plurality of identical IP packets and propagates the plurality of copies of the plurality of identical IP packets to an IP network component external to the router.

14. The apparatus of claim 1, wherein the router comprises a duplex edge router, the apparatus further comprising a duplex core router;

wherein the plurality of copies of the IP packet are associated with a single IP address;

5 wherein the duplex edge router contemporaneously propagates the plurality of copies of the IP packet to the duplex core router.

15. The apparatus of claim 1, wherein the one or more packet replication components comprise a packet replication component that receives the IP packet;

10 wherein the packet replication component propagates the plurality of copies of the IP packet, wherein the plurality of copies of the IP packet comprise the IP packet received by the packet replication component and one reproduction of the IP packet.

16. A method, comprising the steps of:

receiving an IP packet;

generating a plurality of copies of the IP packet, wherein the plurality of copies of the IP packet comprise a first copy of the IP packet and a second copy of the IP packet;

5 propagating the first copy of the IP packet through a first path to an intended destination of the IP packet; and

propagating the second copy of the IP packet through a second path to the intended destination of the IP packet.

17. The method of claim 16, wherein the IP packet is associated with a real-time
10 application, wherein the step of propagating the second copy of the IP packet through the second path to the intended destination of the IP packet comprises the step of:

propagating the second copy of the IP packet through the second path different than the first path to promote an increase in likelihood that at least one copy of the plurality of copies of the IP packet arrives at the real-time application.

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18. The method of claim 16, wherein the step of propagating the first copy of the IP packet through the first path to the intended destination of the IP packet comprises the steps of:

sending the first copy of the IP packet to a first packet selection component;

5 selecting the first copy of the IP packet from one or more available IP packets at the first packet selection component for passage to a first IP switch fabric; and

routing the first copy from the first IP switch fabric through the first path to the intended destination of the IP packet;

wherein the step of propagating the second copy of the IP packet through the second
10 path to the intended destination of the IP packet comprises the steps of:

sending the second copy of the IP packet to a second packet selection component;

selecting the second copy of the IP packet from one or more available IP packets at the second packet selection component for passage to a second IP switch fabric; and

routing the second copy from the second switch fabric through the second path to the
15 intended destination of the IP packet.

19. The method of claim 16, wherein the IP packet comprises an IP header, wherein the step of generating the plurality of copies of the IP packet comprises the steps of:

generating the first copy of the IP packet that comprises a copy of the IP header; and

generating the second copy of the IP packet that comprises a copy of the IP header;

20 associating both the first copy and the second copy of the IP packet with a single IP address.

20. The method of claim 16, wherein the step of propagating the first copy of the IP packet through the first path to the intended destination of the IP packet comprises the step of:

selecting the first copy of the IP packet from the plurality of copies of the IP packet
5 for contemporaneous propagation with the second copy of the IP packet to the intended destination of the IP packet;

wherein the step of propagating the second copy of the IP packet through the second path to the intended destination of the IP packet comprises the step of:

selecting the second copy of the IP packet from the plurality of copies of the IP packet
10 for contemporaneous propagation with the second copy of the IP packet to the intended destination of the IP packet.

21. An article, comprising:

one or more computer-readable signal-bearing media;

means in the one or more media for receiving an IP packet;

means in the one or more media for generating a plurality of copies of the IP packet,

5 wherein the plurality of copies of the IP packet comprise a first copy of the IP packet and a second copy of the IP packet;

means in the one or more media for propagating the first copy of the IP packet through a first path to an intended destination of the IP packet; and

means in the one or more media for propagating the second copy of the IP packet
10 through a second path to the intended destination of the IP packet.

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